Basic and Applied Social Psychology
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/hbas20

Contextual Variations of Infrahumanization: The Role of Physical Context and Territoriality

Naira Delgado Rodríguez [a], Armando Rodríguez-Pérez [a], Jeron Vaes [b], Verónica Betancor Rodríguez [a] & Jacques-Philippe Leyens [c]

[a] University of La Laguna

[b] University of Padova

[c] Université Catholique de Louvain

To cite this article: Naira Delgado Rodríguez, Armando Rodríguez-Pérez, Jeron Vaes, Verónica Betancor Rodríguez & Jacques-Philippe Leyens (2012): Contextual Variations of Infrahumanization: The Role of Physical Context and Territoriality, Basic and Applied Social Psychology, 34:5, 456-466

To link to this article: http://dx.doi.org/10.1080/01973533.2012.712020

BASIC AND APPLIED SOCIAL PSYCHOLOGY, 34:456–466, 2012

ISSN: 0197-3533 print/1532-4834 online
DOI: 10.1080/01973533.2012.712020

Psychology Press
Taylor & Francis Group

Contextual Variations of Infrahumanization: The Role of Physical Context and Territoriality

Naira Delgado Rodríguez and Armando Rodríguez-Pérez
University of La Laguna

Jeron Vaes
University of Padova

Verónica Betancor Rodríguez
University of La Laguna

Jacques-Philippe Leyens
Université Catholique de Louvain

The malleability of the infrahumanization bias was tested varying the physical context in which the ingroup and the outgroup target were assessed. Using a sequential priming paradigm, Study 1 replicated the infrahumanization bias in a neutral context. Study 2 tested the hypothesis that there are contextual variations in infrahumanization. Specifically, Black targets were infrahumanized in a context familiar to White participants, and not in an unfamiliar context. Study 3 revealed that participants' threat perceptions were reduced when ingroup targets appeared in familiar context, compared to Black targets. Theoretical implications for the infrahumanization bias are discussed.

Infrahumanization theory suggests that people establish a stronger association between secondary emotions (i.e., uniquely human emotions like love or contempt) and their own group than between secondary emotions and outgroups. This hypothesis has been empirically supported in several studies, using different methodologies, groups, and a wide variety of primary emotions (i.e., those that are nonuniquely human, like anger or happiness) and secondary emotions (Demoulin, Rodríguez-Torres, et al., 2004; Leyens et al., 2001; Vaes, Paladino, Castelli, Leyens, & Giovanazzi, 2003). At the same time, however, studies testing processes that could moderate the infrahumanization bias are still rare. This fact is at odds with research on other intergroup biases, where empirical results systematically indicate that prejudice can be changed by varying the context in which an evaluation takes place, independently of people's willingness to change their attitudes.

Is infrahumanization a fixed and enduring bias toward outgroups, or can it be changed? The general purpose of the present research is to analyze the malleability of infrahumanization, focusing on the role of the physical context in which the ingroup or the outgroup target is assessed.

THE THEORY OF INFRAHUMANIZATION

Infrahumanization theory focuses on the differential attribution of secondary emotions to the ingroup and the outgroup members. The term *secondary emotion* refers to those emotional states that are exclusively experienced by human beings such as regret, compassion, or shame. On the other hand, the term *primary emotion* comprises basic emotional reactions such as

Correspondence should be sent to Naira Delgado Rodríguez, Departamento de Psicología Cognitiva, Social y Organizacional, Universidad de La Laguna, Campus de Guajara s/n, Tenerife 38205, Spain. E-mail: ndelgado@ull.es

rage, happiness, or fear, which are also present in other animal species. Only secondary emotions are distinctly human; consequently, only they will reflect the infrahumanization bias (Leyens et al., 2000; Leyens et al., 2001).

The hypothesis that secondary emotions are more strongly associated to members of the ingroup than to members of the outgroup has been empirically tested with several procedures. In early research, Leyens and colleagues (Leyens et al., 2000; Leyens et al., 2001) gave participants a list with positive and negative primary and secondary emotions, together with some filler terms. The participants had to indicate whether those traits were more characteristic of the ingroup or the outgroup. Results showed that, although people tended to attribute the same number of primary emotions to both groups, they attributed more secondary emotions to the ingroup than the outgroup, demonstrating people's tendency to infrahumanize the outgroup. It is important to note that people attributed to their group both more positive and negative secondary emotions than to the outgroup. As a consequence, the differential attribution of the capacity to feel secondary emotions is not a matter of simple ingroup favoritism; rather, it involves both positive and negative emotions.

Several studies based on the theory of infrahumanization show that this bias appears in a subtle and automatic way, meaning that perceivers are unaware of it. Stronger mental associations between secondary emotions and the ingroup compared with the outgroup emerged in experiments that used the implicit association task (Paladino et al., 2002), a process-dissociation procedure (Gaunt, Leyens, & Demoulin, 2002), and a lexical decision task (Boccato, Cortés, Demoulin, & Leyens, 2007).

Is it possible to change the infrahumanization of outgroups? There is still no evidence on whether infrahumanization follows an unalterable and rigid pattern, or whether some elements could change it (but see Pereira, Vala, & Leyens, 2009). The purpose of this research is to analyze the potential for change in the infrahumanization bias. To do that, we first analyze previous studies on the malleability of other forms of implicit and explicit prejudice. Numerous studies and theoretical models in social psychology have shown the contextual sensitivity of prejudice. Does the same apply to infrahumanization?

THE PLASTICITY OF INTERGROUP ATTITUDES

Implicit attitudes, considered by many authors to be unavoidable and chronic biases beyond individuals' control, also undergo alterations based on the context. One of the conclusions traditionally reached after studying implicit attitudes is that because they are automatic and nonconscious, they are inevitable and impossible to modify (Devine, 1989; Dovidio & Fazio, 1992; Fazio, Jackson, Dunton, & Williams, 1995). Contrary to these notions, the evidence gathered in recent years reveals that automatic biases are flexible, modifiable, and able to adapt to changes in the context of the stimulus. Recently, a great number of studies have revealed that changes in the context of judgment can influence automatic responses (Barden, Maddux, Petty, & Brewer, 2004; Dasgupta & Greenwald, 2001; Wittenbrink, Judd, & Park, 2001). Based on these new studies, implicit attitudes have begun to be considered flexible and dynamic responses with great potential for change deriving from the influence of the context of judgment on the automatic responses toward a certain social category (Blair, 2002).

One of the studies in this line of research was carried out by Dasgupta and Greenwald (2001). In their study, participants were shown either respected White Americans and notorious Black Americans or notorious White Americans and respected Black Americans. After seeing the images, they completed an Implicit Association Test task to measure their implicit racial biases. Twenty-four hours later, participants repeated the Implicit Association Test. The results showed that positive members of the outgroup and negative members of the ingroup triggered lower levels of automatic prejudice than was found for participants in the other conditions, even 24 hours after the test. These results indicate that implicit attitudes toward an outgroup change according to which members of the ingroup and the outgroup the individuals' attention is drawn.

Wittenbrink et al. (2001) studied the impact of contextual changes on both automatic attitudes and explicit prejudice levels toward a certain outgroup. To be more precise, they presented the participants with images of members of the ingroup (Whites) and the outgroup (Blacks) in a positive stereotypic context (a church) and a negative stereotypic context (a dark street). To measure implicit prejudice, they used an adapted version of the priming task described by Fazio et al. (1995), in which the presentation of intergroup images is combined with positive and negative words. In this task, the images of members of the outgroup served as primes for the negative words, facilitating their recognition. Wittenbrink et al. found that when an image of the outgroup appeared in the negative context, a stronger association with the negative words was established. On the other hand, the presence of a member of the outgroup in a positive context facilitated associations with positive characteristics. In both cases, this effect was mainly observed for outgroup stereotypical traits. Results confirm that activation of automatic

prejudiced responses is highly dependent on the context in which responses are triggered. The same Black person triggers different automatic attitudes when perceived in a church than when perceived in a dark street (Wittenbrink et al., 2001).

The empirical evidence points out that implicit attitudes are not as stable as was originally believed. The changes that take place in the context of intergroup assessment influence implicit attitudes, in the same way that they influence explicit attitudes. Does the same apply to infrahumanization? To answer this question, following the work of Wittenbrink et al. (2001), we focus on a certain type of contextual change: the physical space in which the outgroup is perceived.

THE ROLE OF PHYSICAL CONTEXT IN INTERGROUP RELATIONS

As shown by numerous studies carried out in the field of environmental psychology since the 1970s, the physical space surrounding individuals is of great importance to them. The physical environment is in constant interaction with one's cognitions and perceptions of other people, it provides meaning to the individuals appearing in it, and it allows the perceivers to create expectations about their behavior and their interactions. This fact did not go unnoticed by the first social psychologists (i.e., Heider, Lewin, or Asch) who, based on the school of Gestalt's ideas, pointed out that human behavior can be understood only when the external stimuli are taken into account. Any particular stimulus, including human behavior, acquires different meanings in different contexts.

How can physical spaces change our perception of the outgroups appearing in them? Places are able to modify an image of the outgroup, on one hand, because of the meaning that those places have for the perceiver and, on the other hand, because of the meaning taken on by the outgroup in that specific place. Outgroups may be considered more or less friendly or threatening depending on the place they are in and what that place represents for the perceivers. The more relevant the space in the configuration of the perceiver's group identity, the greater the necessity to protect that place from other social groups, which will be perceived as intruders or invaders.

Human territoriality has two essential functions (Bell, Greene, Fisher, & Baum, 1996). First, territories play a crucial role in how individuals and groups organize their interactions, in order to make life more predictable, ordered, and stable. Apart from this organizing function, territoriality fulfills a function related to social identity. The environments considered to be one's territory provide the individuals with a sense of personal identity, a feeling of distinctiveness and privacy. At an intragroup level, territoriality facilitates trust within the group. Sharing a territory inspires feelings of group identity and security, maybe due to the fact that people living in the same territory share common experiences (Taylor, 1978). However, group cohesion also has negative effects, because strangers are seen with suspicion and defensive reactions against them are triggered. Therefore, defending one's territory is a reaction against the threat involved in the arrival of members of other social groups at a place. The more the space is shared by two different groups, the stronger the interdependency between the ingroup and outgroup, which increases the probability of developing feelings of intergroup threat.

Similarly, the physical context in which an outgroup is perceived may determine the extent to which the outgroup is relevant for the own group. Indeed, relevance and intergroup threat are closely related concepts. Relevance of an outgroup means that the outgroup is important for the ingroup, and thus the actions of the outgroup could affect the situation of the ingroup. Cortés et al. (2005) obtained a negative correlation between a measure of relevance of the outgroup and a measure of infrahumanization. That is, the more participants reported an outgroup to be relevant for the ingroup, the more they infrahumanized them.

OVERVIEW

This research consists of three experiments. The aim of the first one is to adapt an automatic measure capable of capturing the infrahumanization bias, as well as to show that in normal conditions (i.e., without the activation of a specific context) the automatic associations of secondary emotions toward the ingroup and the outgroup are different. Experiment 2 tested the hypothesis that infrahumanization is a contextually dependent bias. Specifically, we proposed that there will be infrahumanization of the outgroup when the ingroup and the outgroup are perceived in familiar contexts, whereas it should not appear when ingroup and outgroup members are in unfamiliar contexts. Finally, Experiment 3 shows differences in the perception of threat according to the context linked to the ingroup and the outgroup. Our hypothesis is that the infrahumanization bias is triggered in those contexts that increase the perception of intergroup threat. In particular, it is expected that the presence of outgroup members in familiar environments will be perceived as more threatening than the presence of ingroup members. On the other hand, it is expected that this difference will not exist when ingroup and outgroup targets are presented in unfamiliar contexts.

In the three experiments presented, we used an automatic measure of infrahumanization. Infrahumanization can be conceptualized as a stronger association

between the ingroup and uniquely human emotions than between the outgroup and these emotions. Sequential priming procedures are designed to assess the likelihood that some construct receives unintentional activation (often without awareness) from memory upon presentation of the critical stimulus. Typically, priming tasks use the strength of association between the target category and related attributes or between these attributes themselves as indicative of the presence and the nature of the link: Consistent associations are recognized faster and more easily than inconsistent ones. Previous studies using other techniques to measure implicit association have concluded that reaction times are faster when secondary emotions are preceded by members of the ingroup than by members of the outgroup (Boccato et al., 2007; Demoulin, Leyens, et al., 2004, Study 2; Paladino et al., 2002; Vaes, Paladino, & Leyens, 2004). This general hypothesis is tested by including a new dimension, that is, the context in which the ingroup and the ourgroup target are perceived.

EXPERIMENT 1

Before focusing on the role of physical context in the infrahumanization process, it is necessary to demonstrate the suitability of the experimental task for studying the infrahumanization bias, as it will be employed in the subsequent studies. Also, it is necessary to illustrate that infrahumanization of the selected outgroup does exist in neutral conditions, that is, when the perception of groups is not contextualized in a certain place. In Experiment 1, it is expected that reaction times will be faster when secondary emotions are preceded by ingroup members than when they are preceded by outgroup members. According to infrahumanization theory, no differences between reaction times for primary emotions preceded by ingroup or outgroup members will be expected.

Method

Participants

Twenty-one White students from the University of La Laguna participated in this study. They all received research credits for their cooperation.

Materials

Words. Twenty-four words—eight secondary emotions (four positive and four negative uniquely human emotions*: love, hope, friendliness, fascination, bitterness, unhappiness, worry, shame*), eight primary emotions (four positive and four negative emotions that are shared by humans and animals: *enjoyment, joy, pleasure, tenderness, alarm, anger, scare, revulsion*), and eight filler terms (four positive and four negative: *embrace, peace, gift, smile, death, prison, stink, dirtiness*)—were used.[1]

The primary and secondary emotions were selected from a normative study (Demoulin, Leyens, et al., 2004). We ensured that the emotional terms were indeed different in humanity but had the same valence. The positive primary and secondary emotions varied in their level of humanity ($Ms = 5.45$ and 3.22, respectively), $t(6) = 5.07$, $p < .01$, on a scale from 1 (*shared by animals and humans*) to 7 (*uniquely human*), but maintained a similar degree of desirability ($Ms = 6.34$ for secondary emotions and 6.67 for primary emotions), $t(6) = .92$, $p = .39$, on a scale from 1 (*absolutely undesirable*) to 7 (*absolutely desirable*). The same was found for the negative emotional terms: Secondary emotions were considered more human than primary emotions ($Ms = 5.50$ and 3.48, respectively), $t(6) = 4.39$, $p < .01$, and both were considered undesirable to feel or to express ($Ms = 1.82$ for secondary emotions and 2.04 for primary emotions), $t(6) = .45$, $p = .65$ (Demoulin, Leyens, et al., 2004).

Ingroup and outgroup photographs. Photographs of young White and Black men were presented. The pictures showed the individual's face, neck, and shoulders; the subject's T-shirts were edited in the photographs so that they were all the same color, and all noticeable hair and neck ornaments were removed. We used 30 photographs, 15 belonging to the participants' ingroup (White) and 15 to the outgroup (Black). Facial expression was controlled; specifically, we selected only neutral expressions.

Procedure

Participants were told that they were going to take part in a study on the visual recognition of words. In fact, the procedure was based on the one by Fazio et al. (1995). The experiment was divided into four sections.

First section (baseline). In the first task, participants had to decide whether a word appearing on the screen was positive or negative. Each trial in this section started with a white cross mark (+) in the middle of a black screen. After 250 ms an emotional or filler word would replace the cross mark and it would remain on

[1]The three experiments were carried out in Spain, so the words that we used were written in Spanish. The Spanish terms were *amor, esperanza, optimism, fascinación, amargura, infelicidad preocupación, vergüenza* (secondary emotions); *alegría, diversion tranuilidad, entusiasmo, alarma, malestar, miedo, tristeza* (primary emotions); *abrazo, paz, regalo, sonrisa, cucaracha, cárcel, peste, suciedad* (filler items).

the screen until the subject said whether it was a positive or a negative word. After the response was made, another cross-mark word sequence would appear, culminating in 24 experimental trials; all participants were presented with all the same words exactly once.

Second section (face learning task). Participants had to carefully observe a number of faces appearing on the screen. They were told that after that they would have to remember which ones they had seen and which ones they had not. Participants were shown eight photographs—four depicting White people and four depicting Black people. Each photo was shown for 1,500 ms. None of the pictures presented in this task were used in the critical task (section 4).

Third section (face recognition). The third task was to recognize the faces that participants had just seen. Sixteen photographs were shown (the eight used in the previous section plus eight fillers). The pictures remained on the screen until the subject answered whether they had seen that person or not.

Fourth section (critical task). The fourth section entails a combination of the previous tasks. The procedure in the first section was repeated, but the cross mark was replaced by an image that would serve as prime. Before every word, a face from the ingroup or the outgroup was shown for 128 ms. After that, the screen turned white for 128 ms, after which a word appeared. Again, 24 words were presented: eight primary emotions, eight secondary emotions, and eight filler items. The participants were told to pay great attention to the faces appearing on the screen while completing the task, as they would have to tell afterward which faces they had seen during the task. After a 12-trial initial training, participants completed 48 trials, so that each word was shown twice, once preceded by the image of a member of the ingroup and once preceded by a member of the outgroup. The total of trials was 60 (training + critical trials), so each ingroup and outgroup photograph was presented twice. The presentation of stimuli was designed using the software E-Prime 1.0 (Schneider, Eschman, & Zuccolotto, 2002) and presented to participants on computers with 15-in. screens.

Results and Discussion

Participants' extremely fast or extremely slow responses (faster than 150 ms and slower than 3,000 ms) were discarded from the data analysis, as were the mistakes (4.59% of the total). Remaining response latencies were subjected to a log-transformation in order to approximate the data to a normal distribution (Kirk, 1968; Ratcliff, 1993).[2] After that, the *facilitation rate* was calculated. This was done by subtracting the scores obtained in the critical task for each word in every priming condition (Black and White faces) from the scores obtained for those same words on the baseline and then averaging within condition. Therefore, more positive values for these difference scores indicate greater response facilitation due to the group prime.

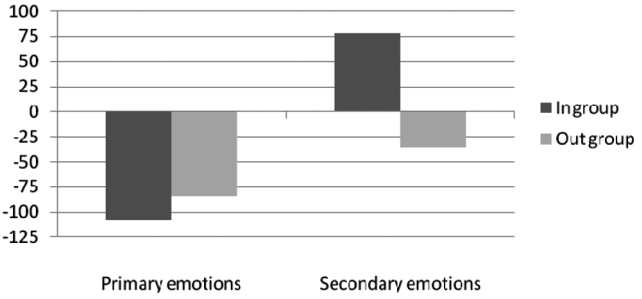

FIGURE 1 Mean response facilitation (ms) for primary and secondary emotions when participants were primed with faces of the ingroup or the outgroup (Experiment 1). *Note.* More positive values for the facilitation index indicate a faster response due to the group prime.

We conducted a 2 (group: Blacks vs. Whites) × 2 (emotion type: secondary emotions vs. primary emotions) × 2 (term valence: positive vs. negative) within-participants analysis of variance (ANOVA). Mean facilitation scores were retransformed into milliseconds for ease of interpretation of the results. The Group × Emotion Type interaction was significant, $F(1, 20) = 4.76$, $p = .041$, $\eta^2 = .19$ (see Figure 1). Simple effects of the interaction showed that the identification of secondary emotions was facilitated by the ingroup prime ($M = 77.90$), whereas the outgroup prime tended to impair these responses ($M = -35.65$), $F(1, 20) = 9.94$, $p < .01$, $\eta^2 = .33$. No significant differences were observed for primary emotions when they were preceded by an image of the ingroup ($M = -108.32$) or by an image of the outgroup ($M = -84.28$). The valence of the emotions did not show any significant effect.

These findings emphasize the suitability of applying Fazio et al. (1995) evaluative priming paradigm to the infrahumanization bias. When members of the ingroup and the outgroup are presented on their own, that is, without a specific context, it can be noticed that the classical infrahumanization bias is displayed. This means that associations are made more quickly between

[2]To verify whether our data effectively had a normal distribution after the log-transformations, we calculated the Kolmogorov-Smirnov Z for each of the primary and secondary emotions. In Experiment 1, 36% of distributions of the reaction times were statistically different from normality, whereas only 1.90% of distributions were different from a normal distribution after the log-transformations.

secondary emotions and ingroup members than between secondary emotions and outgroup members. As expected, this effect is limited to the secondary emotions because using the members of the ingroup or the outgroup as prime does not affect the identification of primary emotions.

EXPERIMENT 2

Experiment 1 provides support for the adequacy of the evaluative priming paradigm to capture infrahumanization. The goal of Experiment 2 was to test the hypothesis that this intergroup bias is malleable. Specifically, we expect that the infrahumanization bias will be stronger when the outgroup appears in the ingroup's territory, that is, in familiar contexts for the ingroup, whereas it will not appear in unfamiliar contexts, where the place is not linked to the ingroup. Therefore, the infrahumanization bias would turn out to be an adaptable and functional bias, which disappears in contexts that are not significant or valuable for the ingroup.

Method

Participants

Twenty-seven White psychology students participated in this study. They were all given research credits for their cooperation.

Material and Procedure

As in Experiment 1, the task was introduced as a study on the visual recognition of words. We followed the procedure devised by Wittenbrink et al. (2001), who adapted Fazio et al.'s (1995) paradigm in order to manipulate the physical context in which the photographs of the ingroup and the outgroup appear. Again, the task was divided into four main sections. However, some adjustments were made and are detailed next.

Context. The context consisted of two different environments taken from a pilot study with 28 participants from a sample of participants similar to those recruited for the main study. Pretest participants assessed 24 photographs on two dimensions: the familiarity (1 = *totally unfamiliar*; 5 = *totally familiar*) and pleasantness of the environment (1 = *totally unpleasant*; 5 = *totally pleasant*). Two environments were selected: a square with a very well-known public building in Tenerife and a mosque-type building. These images were significantly different in familiarity ($M = 4.61$ for the building in Tenerife and $M = 1.50$ for the Arabic building), $t(27) = 13.39$, $p < .01$, whereas they were assessed with a similar degree of pleasantness ($M = 3.17$ for the Canarian building and $M = 3.37$ for the Arabic building), $t(27) = -1.07$, $p = .30$.

Ingroup and outgroup photographs. The same 30 pictures from Experiment 1 were used.

Words. Participants were presented with 24 words: eight secondary emotions (*love, hope, optimism, satisfaction, bitterness, unhappiness, worry, shame*), eight primary emotions (*fun, joy, calm, enthusiasm, alarm, discomfort, fear, sadness*), and eight nonemotional terms used as fillers (*embrace, peace, gift, smile, cockroach, prison, stink, dirtiness*). As in Experiment 1, and based on the data from Demoulin, Leyens, et al.'s (2004) normative study, we ensured that the positive primary and secondary emotions varied in their degree of humanity ($Ms = 3.68$ and 5.62), $t(6) = 3.46$, $p = .01$, for primary and secondary emotions, respectively, at the same time controlling their degree of desirability ($Ms = 6.64$ and 6.59), $t(6) = 0.27$, $p = .79$, for primary and secondary emotions, respectively. The same was true for the negative emotional terms: Secondary emotions were considered to be more human than primary emotions ($Ms = 5.50$ and 3.02), $t(6) = 10.21$, $p < .01$, but they showed the same degree of desirability ($Ms = 2.11$ and 1.82), $t(6) = 0.66$, $p = .54$, for primary and secondary emotions, respectively.

Again, the experiment was divided into four sections. As in Study 1, participants had to decide, as quickly as they could, whether the word appearing on the screen was positive or negative. The reaction times from the first section served as a baseline for the speed at which a certain word is recognized. In the second section, photographs of members of the ingroup and outgroup were shown along with the two selected contexts. Participants were told to pay attention to the photographs because they would have to be able to tell in section 3 which people they had seen before and which they had not. In the critical task (section 4), a priming sequence was shown, which consisted of an environment (familiar vs. unfamiliar context) in which, after a second, an individual would appear during 128 ms (member of the ingroup vs. member of the outgroup). Participants had to pay attention to the photograph and indicate if a word that appeared after each sequence of photographs was positive or negative. Each word was presented four times, preceded in each case by one of the four possible priming sequences. The total of experimental trials was 96, plus 12 trials for training. A total of 24 photographs (12 ingroup and 12 outgroup) were presented three times, and six photographs (three ingroup and three outgroup) appeared four times.

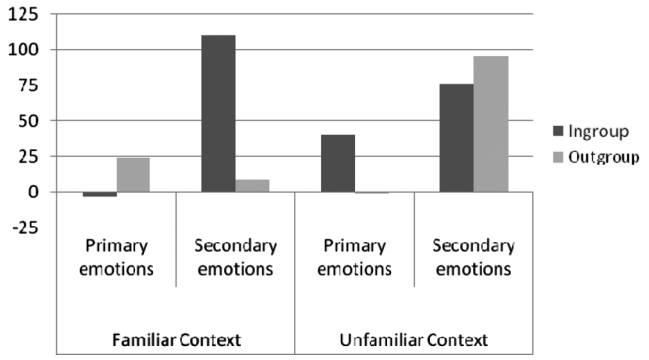

FIGURE 2 Mean response facilitation (ms) for primary and secondary emotions in function of the context (familiar vs. unfamiliar) and the group prime (Experiment 2). *Note.* More positive values for the facilitation index indicate a faster response due to the Group × Context Prime.

Results and Discussion

Participants' extremely fast or extremely slow responses (faster than 150 ms and slower than 3000 ms) were excluded from the data analysis, as were the mistakes (7.18% from the total). The responses obtained in milliseconds were log-transformed to approximate the data to a normal distribution.[3] A facilitation score was calculated by subtracting the scores obtained in the critical task for every priming type (Black and White faces in familiar and unfamiliar contexts) from the scores obtained for every word on the baseline. More positive values for the facilitation score indicate a faster response due to the Group × Context prime in the critical task.

After calculating the facilitation score for every word and with every priming type, we conducted a 2 (context: familiar vs. unfamiliar) × 2 (group: ingroup vs. outgroup) × 2 (emotion type: secondary emotions vs. primary emotions) × 2 (term valence: positive vs. negative) within-participants ANOVA. Mean facilitation scores were retransformed into milliseconds for ease of interpretation.

The data analysis revealed that the three-way Context × Group × Emotion Type interaction was significant, $F(1, 26) = 5.31$, $p = .03$, $\eta^2 = .17$. To analyze the pattern of data, we conducted two separate 2 (context: familiar vs. unfamiliar) × 2 (group: ingroup vs. outgroup) within-participants ANOVAs for primary and secondary emotions. The ANOVA for secondary emotions revealed a significant interaction between context and group, $F(1, 28) = 6.04$, $p = .02$, $\eta^2 = .18$ (see Figure 2). Simple effects of this interaction revealed that, when the familiar context appeared, participants were able to recognize secondary emotions more quickly when they were preceded by members of the ingroup ($M = 110.34$ ms) than by members of the outgroup ($M = 8.67$ ms), $F(1, 28) = 11.64$, $p < .01$, $\eta^2 = .29$. This infrahumanization effect did not appear in the unfamiliar context ($Ms = 76.29$ for the ingroup and 95.16 for the outgroup).

The ANOVA for primary emotions did not reveal differences between the two groups based on the context.

The findings of this experiment show the sensitivity of the infrahumanization bias to contextual variations. More precisely, familiar environments trigger a strong intergroup differentiation in terms of humanity, exactly as the assessments carried out with a neutral background did. However, this intergroup bias does not appear when the groups are found in unfamiliar contexts for the perceiver. The physical space in which the outgroup is perceived therefore becomes a relevant variable that can have an impact on the infrahumanization bias. Our data revealed that the outgroup is humanized in an unfamiliar context, where the outgroup becomes less threatening for the ingroup.

Why do familiar contexts trigger the need for differentiation between the ingroup and the outgroup, in terms of infrahumanization? One possibility is that a familiar context, as well as a neutral framework, activates a sense of intergroup threat. Due to the important role that space has in the configuration of personal and social identity (Proshansky, 1976, 1978; Proshansky, Fabian, & Kasminoff, 1983), the presence of the outgroup in familiar places is threatening to one's own identity. The more relevant the space in the configuration of the perceiver's group identity, the greater the motivation to protect that place from the outgroups. To examine whether familiar contexts increase the sense of intergroup threat, and to explore the possible link between infrahumanization and threat, we conducted a third experiment.

EXPERIMENT 3

Experiment 3 aims at assessing the existence of a greater perception of threat elicited by the outgroup in contexts forming part of the ingroup's territory than in unknown contexts. Our hypothesis is that the perception of threat will be greater when members of the outgroup appear in places that are customary to the perceiver than when members of the ingroup do so. This greater feeling of threat will be manifested in a faster association between threat related words and members of the outgroup than members of the ingroup, when both appear in territories that are characteristic of the ingroup. No such difference is expected when the context is unknown to the ingroup.

[3]We calculated the Kolmogorov-Smirnov Z for each of the primary and secondary emotions in Experiment 2. Distributions improved from 34.20% that differed statistically from normality to 2.70% after log-transformations.

Method

Participants

Twenty-six White high school students participated in this experiment. They received a gift for their participation.

Materials and Procedure

Context. The same environments used in Experiment 2 were used in this experiment—specifically, an environment familiar to the participants (Plaza de España, Santa Cruz de Tenerife) and an environment (a mosque) unfamiliar to them.

Photographs of ingroup and outgroup members. We used the same 30 photographs as in the previous experiments.

Words. Participants were presented with five threat-related words (*threat, damage, danger, risk, violence*) and five filler terms (*avenue, curtain, mint, painter, rake*), combined with series of letters with no meaning. The words were extracted from the works of Mathews, Richards, and Eysenck (1989) and from Keogh and French (2001). Participants were asked to decide whether the series of letters appearing on the screen formed an actual word or not.

The experimental task was divided again into four different sections in the following sequence:

First section (baseline). The first task was to classify every series of letters appearing on the screen into a word or nonword. This first section was implemented in the same way as in Experiment 1, only it was made up of five threat-related words, five filler terms, and 10 nonwords.

Second section (face learning task). This time, participants were shown 16 photographs—eight people appeared twice, once with a familiar background and once again with an unfamiliar background. Four of those eight people were members of the ingroup (White) and four were members of the outgroup (Black). None of these pictures was shown again in the critical task (section 4).

Third section (face recognition). Participants were shown 16 photographs (eight from the previous section plus eight fillers). Each picture appeared on a white background and remained on the screen until the subject said whether he or she had seen it before.

Fourth section (critical task). In this section, words were preceded by a priming sequence. Each trial started with the presentation of one of the backgrounds (familiar or unfamiliar). After 1 s, a face was superimposed on the image for 128 ms. After that, the screen turned white for 128 ms, after which a letter sequence appeared. They had to classify this sequence as a word or nonword. After 12 trials for training, participants were presented with 80 trials in which all the variables in the study were crossed: context type (familiar–unfamiliar), group (Whites–Blacks), and word type (threatening–neutral). Therefore, each participant saw each of the 20 items from the first section four times, preceded in each case by one of the following combinations: familiar context – Black; unfamiliar context – Black; familiar context – White, and unfamiliar context – White. In this experimental section we used 10 pictures of Black people and 10 of White people, repeated four times.

Results and Discussion

Participants' extremely fast or extremely slow responses (faster than 150 ms and slower than 3,000 ms) were excluded from the data analysis, as were the mistakes (6.46% of the total). The responses obtained in milliseconds were log-transformed to approximate the data to a normal distribution.[4] Again, a facilitation score was calculated: More positive values for the facilitation score indicate a faster response due to the Group × Con- Context Prime in the critical task. A 2 (context: familiar vs. unfamiliar) × 2 (group: ingroup vs. outgroup) × 2 (word type: threatening vs. neutral) within-participants ANOVA was conducted. The analysis revealed a significant three-way interaction of Context × Group × Word Type, $F(1, 25) = 7.44$, $p = .01$, $\eta^2 = .23$. To test our hypothesis, we conducted separate 2 (context: familiar vs. unfamiliar) × 2 (group: ingroup vs. outgroup) ANOVAs for threatening and neutral words. For threatening words, the ANOVA revealed a significant Context × Group interaction, $F(1, 25) = 11.20$, $p < .01$, $\eta^2 = .31$. Simple effects of the interaction revealed that the threatening words were recognized faster in a familiar environment when they were preceded by members of the outgroup ($M = 84.52$) than by members of the ingroup ($M = 13.30$), $F(1, 25) = 10.71$, $p < .01$, $\eta^2 = .30$. Regarding the unfamiliar context, the analysis of the simple effects of the interaction revealed no differences between the ingroup and the outgroup when recognizing threatening words ($Ms = 67.60$ for the ingroup and 85.31 for the outgroup, $F < 1$; see Figure 3). The ANOVA for neutral words showed no significant effects.

[4]In Experiment 3, the Kolmogorov-Smirnov Z for each of the primary and secondary emotions revealed that distributions improved from 41.50% that differed statistically from normality to 3.40% after log-transformations.

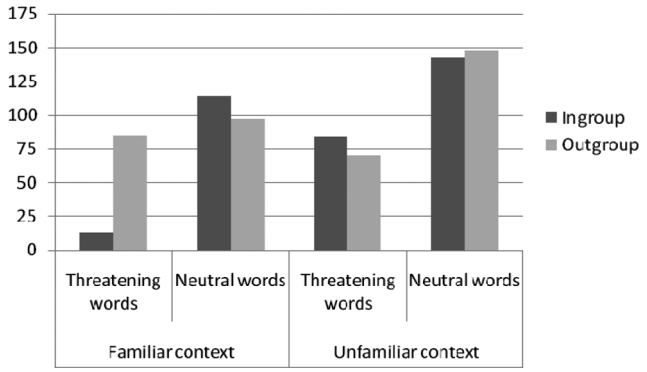

FIGURE 3 Mean response facilitation (ms) for threatening and neutral words in function of the context (familiar vs. unfamiliar) and the group prime (Experiment 3). *Note.* More positive values for the facilitation index indicate a faster response due to the Group × Context Prime.

Our findings show that the presence of members of the ingroup or the outgroup in a familiar or unfamiliar context has different effects on the recognition of threatening words. In familiar contexts, the presence of ingroup members inhibits the recognition of threatening words to a higher extent than the presence of members of the outgroup. However, the unfamiliar context did not vary in terms of threat as a function of group membership. Therefore, the hypothesis posited in this experiment is confirmed: The perception of threat differs when the ingroup and the outgroup are perceived in the ingroup's territory.

GENERAL DISCUSSION

The purpose of this research was to determine whether the context in which outgroups are perceived affects the infrahumanization bias. In particular, we wanted to find out whether infrahumanization was an immutable bias or whether it could be influenced by the physical space in which outgroups were assessed. Our findings show that the differential response latency to identify secondary emotions when preceded by members of the ingroup or the outgroup is not inevitable; on the contrary, it depends on the physical context in which they are perceived. This research opens a new approach to the study of the infrahumanization bias, taking into account the relevance of the context in which the ingroup and the outgroup are perceived.

An implicit association procedure was applied to the infrahumanization phenomenon in the first experiment. We found that participants established stronger associations between secondary emotions and members of their own group (Whites) than between secondary emotions and outgroup members (Blacks). Replicating previous findings, Experiment 1 showed that in the absence of any contextual information White participants infrahumanized Black people.

Experiment 2 enabled us to show that the contextual cues in which the ingroup and the outgroup are perceived exert an important influence on the infrahumanization bias. Specifically, we found that infrahumanization is activated when the outgroup is seen in familiar places. On the contrary, infrahumanization disappears in places that are unfamiliar and are not relevant for them. This experiment confirms the potential for change of the infrahumanization bias, even when participants are not aware that their attitudes toward the outgroup change according to the outgroup's location.

Presenting ingroup or outgroup members in a familiar context not only generates differences in terms of infrahumanization but also affects the perception of threat of the outgroup. The aim of the third experiment was to find out whether the presence of members of the outgroup in familiar spaces triggered a greater threat response than the presence of members of the ingroup. Our findings confirmed this hypothesis. Specifically, in familiar contexts threat-related words were recognized more slowly when preceded by members of the ingroup than by members of the outgroup. On the other hand, the identification of threat-related words was not affected by the group prime when members of the ingroup and the outgroup were presented in an unfamiliar context. These results confirm that the physical space influences the perception of threat.

Together these experiments suggest that threat perceptions play an important role in the activation of the infrahumanization bias. Familiar contexts triggered both the infrahumanization bias and intergroup threat perceptions. Given the absence of an infrahumanization bias in the unfamiliar context, the present results suggest that the perception of threat operates like a necessary condition for infrahumanization to occur. Future research, however, is needed to understand the mechanisms behind the infrahumanization bias and the role of intergroup threat.

It is important to point out that the context where the social groups were assessed affected only the recognition of secondary emotions. When primary emotions were presented, no differential effect was observed in the context-group combination. This result was found in all the experiments and is consistent with other research on infrahumanization that shows that not all emotions but uniquely human secondary emotions are associated differently with the ingroup and the outgroup (Demoulin, Rodríguez-Torres, et al., 2004; Leyens et al., 2000; Leyens et al., 2001).

The results obtained in this research are in line with those obtained in other studies on attitude flexibility

and implicit stereotyping (Blair, 2002; Dasgupta & Greenwald, 2001; Wittenbrink et al., 2001). Infrahumanization, like other intergroup biases, changes according to the elements that constitute the assessment situation, which provides the ingroup and the outgroup with a specific meaning. Therefore, the observed changes in the infrahumanization bias do not necessarily rely on the individuals' voluntary control and active desire to reduce this bias. In other words, infrahumanization can change regardless of whether the individuals want to change or are aware of their own attitudes (Dasgupta & Greenwald, 2001).

Connectionist models of information processing (Kunda & Thagard, 1996; E. R. Smith, 1998; M. B. Smith & Zárate, 1990) explain the contextual dependency of infrahumanization. This theoretical perspective highlights that the meaning of a social category is a product of the network of concepts, emotional reactions, traits, and behaviors activated by the presentation of the outgroup in a specific context. The meaning of the outgroup for the ingroup then could change in each particular situation, with a particular combination of individuals, places, actions, emotions, and related concepts. This theory highlights the flexibility of the image that individuals have of an outgroup in a certain moment. Individuals do not just retrieve information stored in their brains about a certain outgroup in order to express a favorable or unfavorable attitude toward them. On the contrary, each assessment implies the construction of an ad hoc image of the outgroup.

The present work, like the one of Wittenbrink et al. (2001), particularly highlights how the physical context provides meaning to the outgroups. The physical environment where the groups are perceived is not just a mere background. It constantly interacts with the individual's cognitions and assessments of others, providing meaning to the people appearing in it, assigning them certain roles, and generating expectations concerning their behavior. The background changes the subject. Asch (1946) stated that in order to understand human behavior, it is necessary to observe the stimuli around them because stimuli acquire different meanings in different contexts. In line with this idea, the physical context is crucial in the emergence of a particular outgroup's attitude. Attitudes toward immigrants can be very negative and denigrating because they come into our cities, but this does not prevent people from going on vacation to Morocco or Turkey and enjoying the people and their cultural heritage, because it is all new, unknown, and not threatening. Undoubtedly, the outgroup is not the same outgroup here, in our own place, as it is far away.

One could argue that people would feel more vulnerable and uncertain in unfamiliar environments, and so that's where outgroup members will be more threatening. Our data suggest that infrahumanization is not a protective reaction in unknown locations but a way to protect one's own space and one's own identity from the outgroup members. However, further research is needed to fully examine and better understand this effect and its implications.

When no background or context is provided, our data suggest that people tend to "make up" their own context picking out that what is familiar to them. Indeed, in Experiment 1, when ingroup and outgroup members were assessed on a neutral background, the infrahumanization bias was activated. In fact, this situation is the most frequent one in the studies on infrahumanization up until now: As far as we know the assessment of the ingroup and the outgroup has always been measured without any references to the physical context in which the targets found themselves. It is possible that in such situations perceivers "make up" their own context, imagining especially that which is familiar to them. Some studies have pointed out that the outgroups must be relevant to the individuals assessing them, or must have a relationship that is marked by some form of interdependence with the ingroup, in order to activate the infrahumanization bias (Cortés et al., 2005; Leyens, Demoulin, Vaes, Gaunt, & Paladino, 2007). Relevance and interdependence exist when the presence of one group has consequences for another group, and for this to be possible, both groups must have some kind of contact or share the same space. Thus, presenting the ingroup and the outgroup without any background enables the perceiver to contextualize the assessment situation, taking as a frame of reference what they know—that is, their own environment and their relationship with the outgroups.

In sum, our studies show that the physical context in which outgroups are perceived influences the infrahumanization bias. Perceiving the outgroups in familiar places hinders the association of secondary emotions with them, whereas perceiving them in unfamiliar spaces facilitates this association. The perception of threat plays a vital role in the process of outgroup infrahumanization.

ACKNOWLEDGMENTS

This research was funded by a research project (DGICYT PSI2009-09777), subsidized by the Ministry of Science and Technology of the Spanish government.

REFERENCES

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology*, *41*, 258–290.

Barden, J., Maddux, W. W., Petty, R. E., & Brewer, M. B. (2004). Contextual moderation of racial bias: The impact of social roles on controlled and automatically activated attitudes. *Journal of Personality and Social Psychology*, *87*, 5–22.

Bell, P. A., Greene, T. C., Fisher, J. D., & Baum, A. (1996). *Environmental psychology*. New York, NY: Dryden Press.

Blair, I. (2002). The malleability of automatic stereotypes and prejudice. *Personality and Social Psychology Review*, *6*, 242–261.

Boccato, G., Cortés, B., Demoulin, S., & Leyens, J. P. (2007). The automaticity of infrahumanization. *European Journal of Social Psychology*, *37*, 987–999.

Cortés, B., Demoulin, S., Viki, T., Rodríguez-Torres, R., Rodríguez-Pérez, A., & Leyens, J. P. (2005). Infrahumanization or familiarity? Attribution of uniquely human emotions to the self, the ingroup and the outgroup. *Personality and Social Psychology Bulletin*, *31*, 243–253.

Dasgupta, N., & Greenwald, A. G. (2001). On the malleability of automatic attitudes: Combating automatic prejudice with images of admired and disliked individuals. *Journal of Personality and Social Psychology*, *36*, 316–328.

Demoulin, S., Leyens, J. P., Paladino, M. P., Rodríguez-Torres, R., Rodríguez-Pérez, A., & Dovidio, J. F. (2004). Dimensions of "uniquely" and "non-uniquely" emotions. *Cognition and Emotion*, *18*, 71–96.

Demoulin, S., Rodríguez-Torres, R., Rodríguez-Pérez, A., Vaes, J., Paladino, M. P., Gaunt, R., ... Leyens, J. P. (2004). Emotional prejudice can lead to infrahumanization. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology* (Vol. 15, pp. 259–296). London, England: Psychology Press.

Devine, P. G. (1989). Automatic and controlled processes in prejudice: The role of stereotypes and personal beliefs. In A. R. Pratkanis, S. J. Beckler, & A. G. Greenwald (Eds.), *Attitude structure and function* (pp. 181–212). Hillsdale, NJ: Erlbaum.

Dovidio, J. F., & Fazio, R. H. (1992). New technologies for the direct and indirect assessment of attitudes. In J. Tanur (Ed.), *Questions about questions: Inquiries into the cognitive bases of surveys* (pp. 204–237). New York, NY: Russell Sage Foundation.

Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams, C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: A bona fide pipeline? *Journal of Personality and Social Psychology*, *69*, 1013–1027.

Gaunt, R., Leyens, J. P., & Demoulin, S. (2002). Intergroup relations and the attribution of emotions: Controllability of memory for secondary emotions associated to ingroup versus outgroup. *Journal of Experimental Social Psychology*, *38*, 508–514.

Keogh, E., & French, C. C. (2001). Test anxiety, evaluative stress, and susceptibility to distraction from threat. *European Journal of Personality*, *15*, 123–141.

Kirk, R. E. (1968). *Experimental design: Procedures for the behavioural sciences*. Pacific Grove, CA: Brooks-Cole.

Kunda, Z., & Thagard, P. (1996). Forming impressions from stereotypes, traits, and behaviors: A parallel-constraint-satisfaction theory. *Psychological Review*, *103*, 284–308.

Leyens, J. P., Demoulin, S., Vaes, J., Gaunt, R., & Paladino, M. P. (2007). Infrahumanization: The wall of group differences. *Social Issues and Policy Review*, *1*, 139–172.

Leyens, J. P., Paladino, P. M., Rodríguez-Torres, R., Vaes, J., Demoulin, S., Rodríguez-Pérez, A., & Gaunt, R. (2000). The emotional side of prejudice: The role of secondary emotions. *Personality and Social Psychology Review*, *4*, 186–197.

Leyens, J. P., Rodríguez-Pérez, A., Rodríguez-Torres, R., Gaunt, R., Paladino, P. M., Vaes, J., & Demoulin, S. (2001). Psychological essentialism and the differential attribution of uniquely human emotions to ingroups and outgroups. *European Journal of Social Psychology*, *31*, 395–411.

Mathews, A., Richards, A., & Eysenck, M. (1989). Interpretation of homophones related to threat in anxiety states. *Journal of Abnormal Psychology*, *98*, 31–34.

Paladino, P. M., Leyens, J. P., Rodríguez-Torres, R., Rodríguez-Pérez, A., Gaunt, R., & Demoulin, S. (2002). Differential association of uniquely and non-uniquely human emotions to the ingroup and the outgroups. *Group Processes and Intergroup Relations*, *5*, 105–117.

Pereira, C., Vala, J., & Leyens, J. P. (2009). From infrahumanization to discrimination: Mediation of symbolic threat needs egalitarian norms. *Journal of Experimental Social Psychology*, *45*, 336–344.

Proshansky, H. M. (1976). The appropriation and misappropriation of space. In P. Korosec (Ed.), *Appropriation of space. Proceedings of the Strasbourg Conference* (pp. 31–45). Louvain-la-Neuve, Belgium: CIACO.

Proshansky, H. M. (1978). The city and self-identity. *Environment and Behavior*, *10*, 147–169.

Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. *Journal of Environmental Psychology*, *3*, 57–83.

Ratcliff, R. (1993). Methods for dealing with reaction time outliers. *Psychological Review*, *114*, 510–532.

Schneider, W., Eschman, A., & Zuccolotto, A. (2002). *E-prime*. Pittsburgh, PA: Psychology Software Tools.

Smith, E. R. (1998). Mental representation and memory. In D. T. Gilbert, S. T. Fiske, & L. Gardner (Eds.), *The handbook of social psychology*, Vol. 1 (pp. 391–445). New York, NY: McGraw Hill.

Smith, M. B., & Zárate, M. A. (1990). Exemplar and prototype use in social categorization. *Social Cognition*, *8*, 243–262.

Taylor, R. B. (1978). Human territoriality: A review and a model for future research. *Cornell Journal of Social Relations*, *13*, 125–151.

Vaes, J., Paladino, M. P., Castelli, L., Leyens, J. P., & Giovanazzi, A. (2003). On the behavioral consequences of infrahumanization: The implicit role of uniquely human emotions in intergroup relations. *Journal of Personality and Social Psychology*, *85*, 1016–1034.

Vaes, J., Paladino, M. P., & Leyens, J. P. (2004). Perspective taking in an intergroup context and the use of uniquely human emotions: Drawing an E on your forehead. *International Review of Social Psychology*, *17*, 5–26.

Wittenbrink, B., Judd, C. M., & Park, B. (2001). Spontaneous prejudice in context: Variability in automatically activated attitudes. *Journal of Personality and Social Psychology*, *81*, 815–827.